What is claimed is:

1. A network for providing switched virtual circuit Layer-2 VPNs, said network comprising:

    a set of elements interconnected by services;

    at least one first subset of said elements defining a private network;

    at least one second subset of elements different from said first subset defining a provider network wherein at least two subgroups of said first subset of elements may be connected via said provider network;

    a provisioning mechanism used to define element membership in said first subset of elements;

    a plurality of customer ports maintained on said elements of said first subset of elements;

    a plurality of provider ports maintained on said second set of elements, each of said plurality of provider ports connected by services to a customer port;

    a port information table at each element of said provider network having a provider port, said port information table containing mapping information relating addresses of customer ports to addresses of provider ports for said first subset of elements;

    a signalling mechanism used to create Layer-2 connectivity between elements within said first subset of elements at the Layer-2 level across said second subset of elements; and

    a reachability distribution mechanism.

2. A network for providing switched virtual circuit Layer-2 VPNs as claimed in claim 1, wherein said reachability distribution mechanism uses a Layer-3 VPN service.

3. A network for providing switched virtual circuit Layer-2 VPNs as claimed in claim 2, wherein said a subset of Layer-3 VPN service piggybacks VPN routes onto the backbone Border Gateway Protocol.

4. A network for providing switched virtual circuit Layer-2 VPNs as claimed in claim 2, wherein said a subset of L ayer-3 VPN service uses a virtual router redistribution scheme.

5. A network for providing switched virtual circuit Layer-2 VPNs as claimed in claim 1, wherein said signalling mechanism is an MPLS signalling mechanism.

6. A network for providing switched virtual circuit Layer-2 VPNs as claimed in claim 1, further comprising an auto-discovery mechanism for distributing said mapping information to port information tables of said provider network.

7. A network for providing switched virtual circuit Layer-2 VPNs as claimed in claim 6, wherein said auto-discovery mechanism for distributing said mapping information uses Border Gateway Protocol.

8. A network for providing switched virtual circuit Layer-2 VPNs as claimed in claim 1, wherein said p rovisioning mechanism operates in conjunction with said signalling mechanism to restrict element connectivity to elements of said first subset.

9. A network for providing switched virtual circuit Layer-2 VPNs as claimed in claim 1, wherein said data and signalling services have IP signalling services.

10. A network for providing switched virtual circuit Layer-2 VPNs as claimed in claim 1, wherein said customer port addresses need be unique only within said first subset of elements.

11. A network for providing switched virtual circuit Layer-2 VPNs as claimed in claim 1, wherein said customer port addresses and provider port addresses use an addressing scheme chosen from the group of IPv4, IPv6, and NSAP.

12. A method of organizing a network having a set of elements interconnected by services, wherein at least one first subset of said elements defines a private network and at least one second subset of elements different from said first subset defines a provider network and wherein at least two subgroups of said first subset of elements may be connected via said provider network, said method comprising:

    defining element membership in said first subset of elements via a provisioning mechanism;

    establishing a plurality of customer ports within said elements of said first subset of elements;

    establishing a plurality of provider ports within said second set of elements, each of said plurality of provider ports connected by services to a customer port;

    establishing a port information table at each element of said provider network having a provider port, said port information table containing mapping information relating addresses of customer ports to addresses of provider ports;

    determining reachability across said second subset of elements; and

    creating Layer-2 connectivity within said first subset of elements at the Layer-2 level across said second subset of elements via a signalling mechanism.

13. The method of claim 12 wherein said reachability is determined via a Layer-3 VPN service.

14. The method of claim 13 wherein said Layer-3 VPN service piggybacks VPN routes onto the backbone Border Gateway Protocol.

15. The method of claim 13 wherein said Layer-3 VPN service uses a virtual router redistribution scheme.

16. The method of claim 12, further comprising the step of:

distributing said mapping information to port information tables of said provider network via an auto-discovery mechanism.

17. The method of claim 16, wherein said auto-discovery mechanism for distributing said mapping information uses Border Gateway Protocol.

18. The method of claim 12 further comprising the step of:
   restricting element connectivity to elements of said first subset via said provisioning mechanism operating in conjunction with said signalling mechanism.

19. The method of claim 12 wherein said signalling mechanism is an MPLS signalling mechanism.

20. The method of claim 12 wherein said data and signalling services have IP signalling services.

21. The method of claim 12 wherein said customer port addresses need be unique only within said first subset of elements.

22. The method of claim 9 wherein said customer port addresses and provider port addresses use an addressing scheme chosen from the group of IPv4, IPv6, and NSAP.

23. A method of organizing a network having a set of elements interconnected by services, wherein at least one first subset of said elements defines a private network and at least one second subset of elements different from said first subset defines a provider network and wherein at least two subgroups of said first subset of elements may be connected via said provider network, said method comprising:
   defining a L2VPN topology;

establishing a plurality of customer ports within said elements of said first subset of elements;

establishing a plurality of provider ports within said second set of elements, each of said plurality of provider ports connected by data and signalling services to a customer port;

creating a Layer-2 Port Information Table for each provider port;

establishing the identity of customer ports attached to each provider port, and populating the Layer-2 Port Information Table at that provider port with mapping information relating addresses of customer ports to addresses of provider ports;

distributing said mapping information to Layer-2 Port Information Tables of said provider network via an auto-discovery mechanism;

determining reachability across said second subset of elements via a Layer-3 VPN service; and

creating Layer-2 connectivity within said first subset of elements at the Layer-2 level across said second subset of elements via a signalling mechanism upon request from an element within said first subset of elements.